McKinsey Global Institute

October 2014

A blueprint for addressing the global affordable housing challenge

Executive summary

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IN BRIEF

A blueprint for addressing the global affordable housing challenge

Access to decent, affordable housing is so fundamental to the health and well-being of people and the smooth functioning of economies that it is imbedded in the United Nations Universal Declaration of Human Rights. Yet in developing and advanced economies alike, cities struggle with the dual challenges of housing their poorest citizens and providing housing at a reasonable cost for low- and middle-income populations. In this report, we look at the dimensions of this problem—and how it will grow over the next decade—and offer a set of solutions that can narrow the affordable housing gap. Among our key findings:

- We estimate that 330 million urban households around the world live in substandard housing or are financially stretched by housing costs. Some 200 million households in the developing world live in slums; in the United States, the European Union, Japan, and Australia, more than 60 million households are financially stretched by housing costs.

- Based on current trends in urban migration and income growth, we estimate that by 2025, about 440 million urban households around the world—at least 1.6 billion people—would occupy crowded, inadequate, and unsafe housing or will be financially stretched.

- The housing affordability gap is equivalent to $650 billion per year, or 1 percent of global GDP. In some of the least affordable cities, the gap exceeds 10 percent of local GDP.

- To replace today's substandard housing and build additional units needed by 2025 would require an investment of $9 trillion to $11 trillion for construction; with land, the total cost could be $16 trillion. Of this, $1 trillion to $3 trillion may have to come from public funding.

- We identify four ways to reduce the cost of delivering affordable housing by 20 to 50 percent: unlock land at the right location (the most important lever), reduce construction costs through value engineering and industrial approaches, increase operations and maintenance efficiency, and reduce financing costs for buyers and developers.

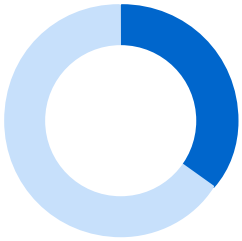
- These largely market-based measures can benefit households in all income groups and, with some cross subsidies, can reduce costs sufficiently to make housing affordable (at 30 percent of income) for households earning 50 to 80 percent of area median income.

- Affordable housing is an overlooked opportunity for developers, investors, and financial institutions. Building units for 106 million more poor urban households by 2025 could require more than $200 billion a year and account for 7 percent of mortgage originations.

These findings indicate that new approaches are needed. Standard approaches to affordable housing will yield only standard—and inadequate—results. Cities need to think more broadly and creatively about a housing ladder that includes affordable housing but accommodates citizens of all income groups and their changing needs. For the poorest citizens, the ladder may start with very basic housing that places people in decent accommodations and connects them to employment and society. To turn these aspirations into reality, cities will need smoothly functioning "delivery platforms."

Affordable housing is defined by three parameters, which cities need to tailor to their local contexts

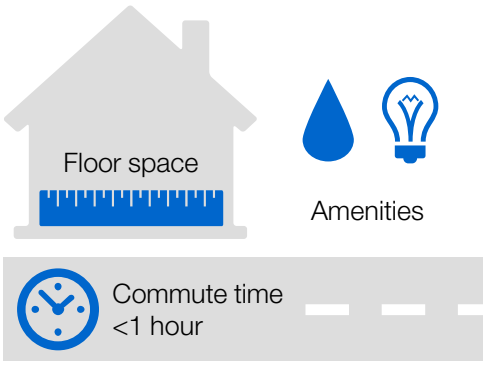
Affordability threshold



30–40%
of income
on housing

60–70%
of income on food, health care, and other expenses

Standard unit



Income threshold

80% area
median income

The challenge today …

96 million
urban households are
financially overstretched

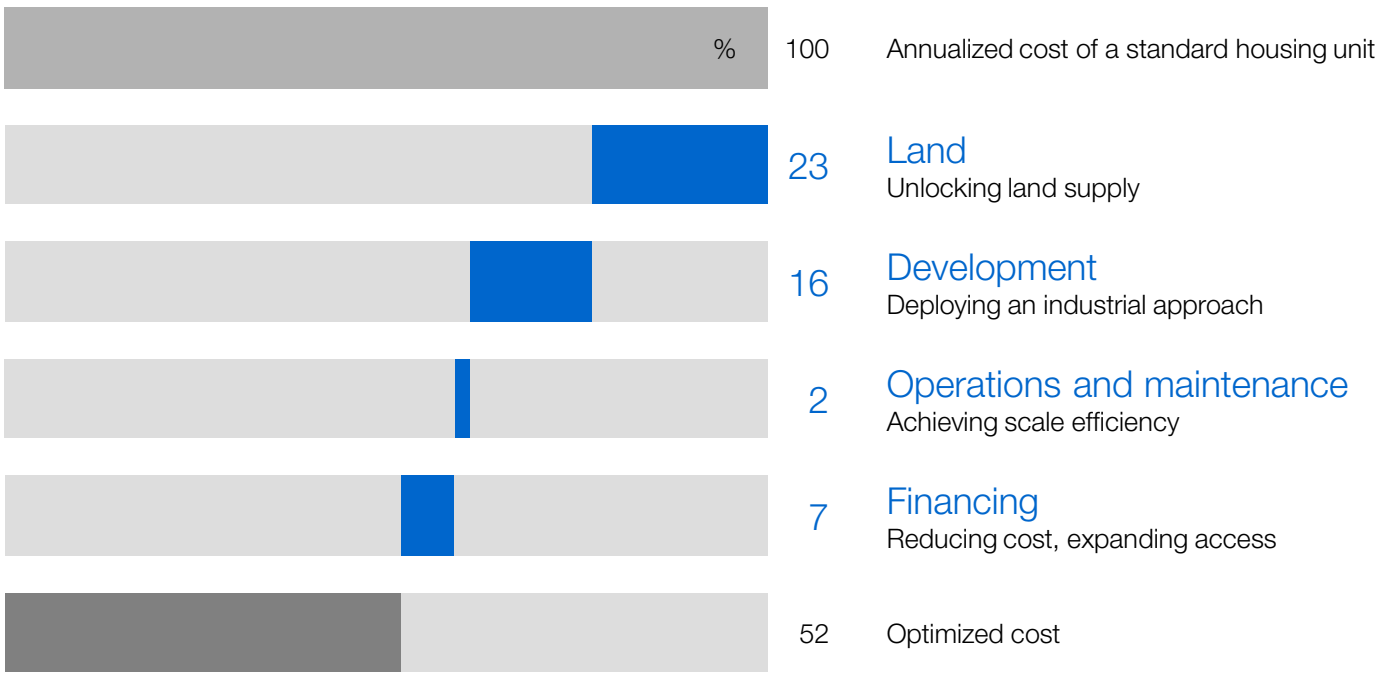
235 million
urban households live in
substandard housing

… and by 2025

106 million additional low-income households
will face the affordability housing challenge

… affecting 1.6 billion people or
one-third of urban population

Four levers can address the global affordable housing challenge



Executive summary

The struggle to obtain decent, affordable housing could affect at least 1.6 billion people globally within a decade, leaving more than a third of all urban dwellers in unsafe or inadequate housing or financially stretched by housing costs. The four levers that we lay out in this report, combined with effective local delivery, can bring decent homes within reach of hundreds of millions of households and narrow the affordable housing gap.

Affordable housing is a global challenge—and an opportunity

Affordable housing is a global challenge for cities in both developing and advanced economies. Based on a broadly accepted definition of affordable housing (see Box E1, "Defining affordable housing"), 330 million urban households around the world today lack decent housing or are so financially stretched by housing costs that they forgo other basic needs, including food, health care, and schooling for children.

Box E1. Defining affordable housing

The definition of "affordable housing" varies across economies, but generally it includes a financial component (the share of income devoted to housing), a standard for what constitutes minimum socially acceptable housing with a clear idea of what income groups are affected, and at what income level households should be eligible for housing assistance.

The definition should accommodate a range of sizes, tenure options (purchase vs. rental), and affordability thresholds that take into account households of different sizes and incomes in the area. In many parts of the world, "affordability" is defined as housing costs that consume no more than 30 to 40 percent of household income; we use 30 percent for our estimates.

A basic socially acceptable standard housing unit is defined by a particular community's view of what is required for decent living and this varies by city. How much floor space is required in a standard unit reflects consumer choices, market conditions, and regulatory constraints. The definition should also include minimum standards for basic amenities (running water, a toilet) as well as access to essential social services such as schools and health clinics. An acceptable housing unit should also place workers no more than an hour's commute from centers of employment.

Finally, as cities define affordable, socially acceptable housing to inform policy making, they should define which kinds of households will be the beneficiaries of policies, particularly which types of households will require direct government support. In our analysis, we focus on the affordability gap for households earning 80 percent of the area median income or less. Great care needs to be exercised when setting definitions for use in policy making. A floor-space standard for a housing unit that is set too high could result in overpriced units for low-income residents and push more households into the informal housing sector.

AT LEAST 1.6 BILLION PEOPLE IN URBAN AREAS COULD BE AFFECTED

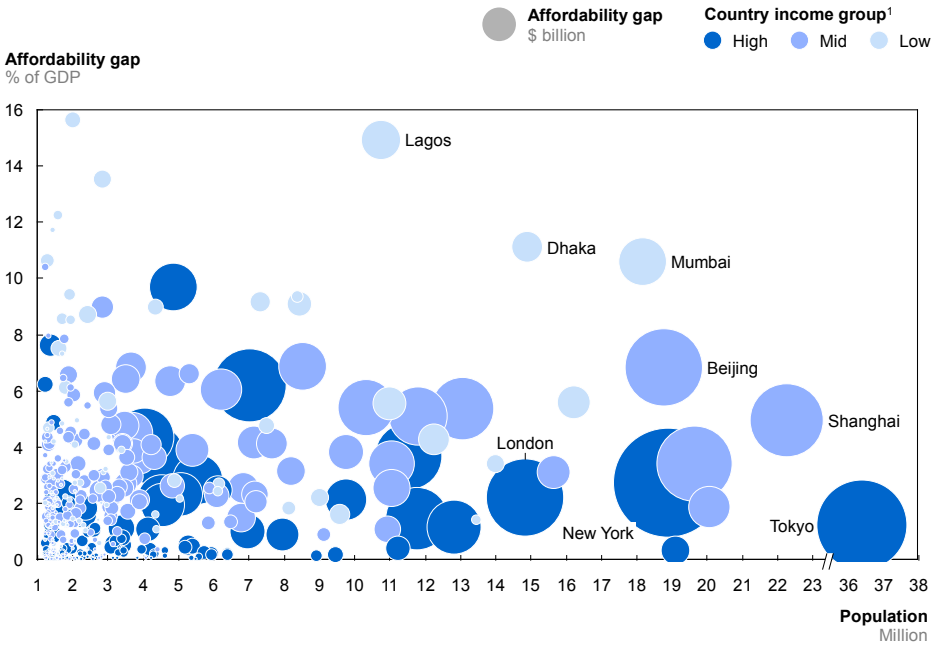
If current trends in urbanization and income growth persist, the affordable housing gap would grow from 330 million urban households to 440 million by 2025, leaving at least 1.6 billion people living in substandard housing or financially stretched by housing costs. This estimate is based on an analysis of incomes and housing in more than 2,400 cities around the world—essentially all cities with populations exceeding 200,000—and counts households earning less than 80 percent of area median income that cannot secure a minimum acceptable housing unit for 30 percent of their income. The number of households having affordability challenges would be higher if the data included all urban areas and we measured the affordability gap for households at all income levels.

The estimate of the 2025 housing challenge (440 million households) includes about 200 million existing households in developing economies and an estimated 32 million households in advanced economies whose housing is inadequate, as well as around 100 million households that are financially stretched. In addition, we include an estimate of 106 million more urban households by 2025 that are likely to be unable to afford decent housing.

In monetary terms, we estimate that the affordability gap could be $650 billion per year, approaching 1 percent of global GDP. This figure includes housing payments that exceed 30 percent of income by households in the 2,400 cities we analyze, the cost of government housing assistance programs, and the implied cost of bringing substandard housing up to standards. More than two-thirds of the gap is concentrated in 100 large cities (Exhibit E1). In several low-income cities, such as Lagos and Mumbai, the affordable housing gap can amount to as much as 10 percent of area GDP.

Exhibit E1

We have sized the affordability gap for approximately 2,400 cities



1 As defined by World Bank.

SOURCE: World Bank; UBS Prices and Earnings Report 2012; Numbeo; CEIC; Deposits.org; Global Banking Pool; Royal Bank of Scotland; Zillow; Metroscubicos; Exame; Notaires Paris Ile de France; Jones Lang LaSalle; McKinsey Global Institute Cityscope database; US Census Bureau; national statistics offices; McKinsey Global Institute analysis

The enormity of the economic affordability gap underscores why this challenge cannot be met with government subsidies and income support alone. The good news is that there are market-based approaches that create value while reducing costs. The levers we describe in this report, if applied systematically and in appropriate ways for the local context, can help cities narrow the affordability gap.

Addressing the affordable housing gap will likely take on increasing urgency as the number of affected households grows and the negative spillover effects multiply. Based on the projected rate of urbanization around the world, we estimate that the number of people affected by the affordable housing gap could rise to 1.7 billion in 2030 and 1.8 billion in 2035. This would exact an enormous toll on society. For families lacking decent affordable housing, health outcomes are poorer, children do less well in school and tend to drop out earlier, unemployment and under-employment rates are higher, and financial inclusion is lower.

AFFORDABLE HOUSING FOR ALL WOULD REQUIRE A $16 TRILLION CAPITAL OUTLAY OVER DECADES

The prospect of trying to fill a gap of 440 million housing units that will be required by 2025 may seem daunting to policy makers, but it could represent a massive opportunity for the private sector. The investment associated with building the housing needed to close this gap would be $9 trillion to $11 trillion for construction alone.[1] With the cost of land, we estimate the total could be as much as $16 trillion. We estimate that the share of the $16 trillion that would need to come from public sources—the "viability gap"—could be $1 trillion to $3 trillion. However, the size of viability gap funding required will vary significantly across cities.

This estimate of capital expenditure entails building affordable housing units to replace existing substandard units as well as new housing for the additional low-income urban households that would be added from 2012 to 2025. Building homes for the 106 million new low-income households by 2025 alone could cost $2.3 trillion, representing a construction market of $200 billion to $250 billion annually, or about 10 percent of the global residential real estate construction industry. The largest markets for new construction for low-income housing units in 2025 would be in China, Russia, India, Brazil, and Nigeria.

Affordable housing also provides an opportunity for the finance sector. Mortgage issuance of $300 billion to $400 billion per year could be needed by 2025 to fund purchases of new affordable housing (not including the financing required to redevelop current substandard units). This would be equivalent to about 7 percent of global new mortgage origination volume in 2025.

1 The upper bound of our estimate is based on current construction cost estimates; the lower bound represents estimates of affordable housing construction costs that have been optimized by use of industrial construction techniques and other measures described in Chapter 2.

Box E2. Myths and realities about affordable housing

Myth 1: There is no economic case for affordable housing.
Reality: Affordable housing can raise productivity. Affordable housing in the right locations boosts the city's productivity by integrating lower-income populations into the economy and reducing costs to provide shelter and services. It enables labor mobility, opening a path to rising incomes, giving households more to spend on goods and services in their neighborhoods and, over time, enabling them to move up the income pyramid and help drive city GDP growth.

Myth 2: Upper-income and lower- income housing markets are independent.
Reality: A city is an integrated housing market with a mixture of incomes. Cities need to think of housing as one market, in which decisions at the top trickle down through all income groups and where market failures in any submarket have ramifications across the city. In a vibrant housing market, building new housing for upper income segments will ultimately free up housing for middle- and lower-income groups, either for rental or ownership.

Myth 3: Addressing the affordable housing gap means investing in new buildings.
Reality: Renewal is as important as new building. The existing housing stock and new units are complementary parts of the same solution. Existing housing, even in poor condition, may serve residents better by placing them where they have social connections and access to employment. Cities need to provide housing where residents can flourish, whether by building new units or supporting refurbishment, repairs, and upgrading of existing stock.

Myth 4: Cities can guarantee decent housing by imposing high standards.
Reality: Affordable housing is part of a "ladder" of rising housing aspirations. Uniform standards that are set too high can price poor households out of formal housing (without subsidies). It may be better to provide basic, safe shelter in appropriate locations, even with limited space or communal facilities, if it can house lowest-income households until their incomes rise.

Myth 5: There is no land for affordable housing.
Reality: Cities have land at appropriate locations that could be unlocked. Even in cities such as New York there are many parcels of under-utilized or idle land—including government-owned land—that could support successful housing development. Land can be freed for development trough idle-land regulations, land readjustment and pooling, and transit-oriented development.

Myth 6: Construction costs are too high to make housing more affordable.
Reality: Proven technologies and approaches and regulatory support can enable large-scale, low-cost housing production. Industrial approaches (using components manufactured off-site), standardization, and improved purchasing and other processes can reduce cost by 30 percent. Uniform building codes can spread these practices and government can use its purchasing power to build scale for industrial production, which can require high capital costs.

Myth 7: Affordable housing is too risky to finance.
Reality: Financing for purchasers and builders can be made less risky and less expensive. With better data (valid property appraisals, credit ratings, use of non-traditional credit-rating data) and proper controls, lenders can reduce underwriting costs and safely lower rates for low-income borrowers. Contractual savings programs can help borrowers build down payments. Developer financing costs can be cut in many ways, including de-risking projects by guaranteeing occupancy and streamlining permitting.

Myth 8: Affordable housing is an unattractive investment.
Reality: Well-located, properly maintained, affordable housing can be quite profitable. Housing built for lower-income households runs a higher risk of dilapidation and value loss, but mostly due to weak asset management practices and poor choice of location. However, if housing is built where residents can connect to employment and vital services, and if management realizes scale efficiencies in operations and maintenance, properties can rise in value.

Myth 9: Affordable housing is a national-level problem.
Reality: Yes, lack of access to decent housing is a national issue, but the solutions are local. Cities are the logical unit for housing planning: they can work best with the public, government agencies, and the local private sector. Only local planning using household-level data across all income bands and local decision-making can achieve community consensus and success.

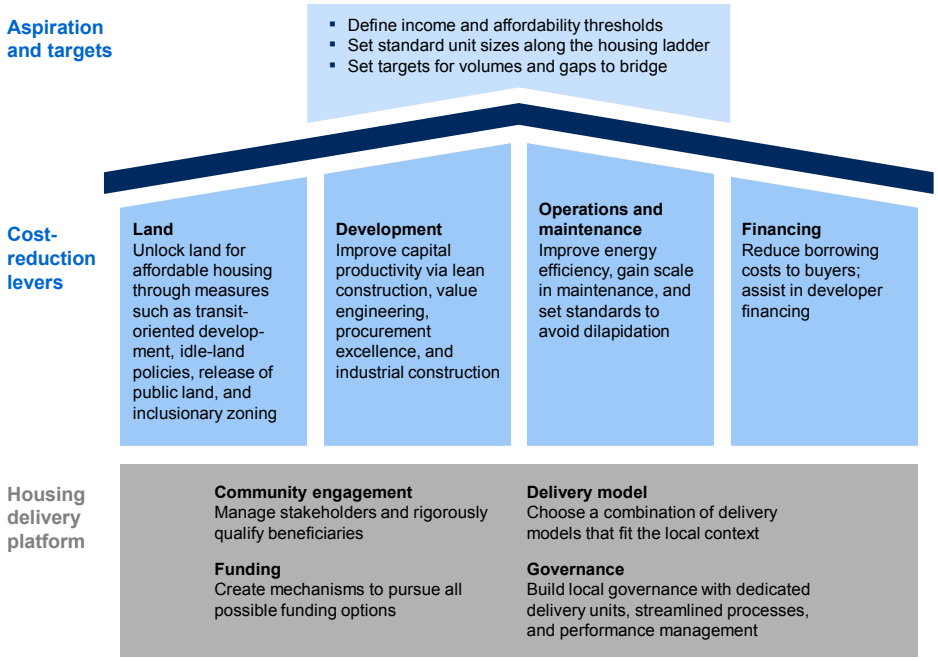
Myth 10: Affordable housing requires a massive commitment of government resources.
Reality: Speed of delivery may be the most important factor in success. If private developers can execute projects on tight, predictable schedules—and use cost-reducing strategies—the economics of affordable housing improve significantly. Cities must plan and oversee housing programs, but their greatest contribution might be ensuring that permitting and other development-related regulatory processes do not get in the way.

THE AFFORDABLE HOUSING GAP CAN BE NARROWED USING FOUR MAJOR APPROACHES

We identify four approaches that can narrow the affordable housing gap through savings in four areas: securing land for affordable housing at the right location, developing and building housing at lower cost, operating and maintaining properties more efficiently, and improving access to financing for home purchases, development, and rental assistance (Exhibit E2).

Exhibit E2

Affordable housing can be addressed systematically: setting targets, employing cost-reduction levers, and strengthening local delivery


Aspiration and targets
Define income and affordability thresholds
Set standard unit sizes along the housing ladder
Set targets for volumes and gaps to bridge
Cost-reduction levers
Land
Unlock land for affordable housing through measures such as transit-oriented develop-ment, idle-land policies, release of public land, and inclusionary zoning
Development
Improve capital productivity via lean construction, value engineering, procurement excellence, and industrial construction
Operations and maintenance
Improve energy efficiency, gain scale in maintenance, and set standards to avoid dilapidation
Financing
Reduce borrowing costs to buyers; assist in developer financing
Housing delivery platform
Community engagement
Manage stakeholders and rigorously qualify beneficiaries
Funding
Create mechanisms to pursue all possible funding options
Delivery model
Choose a combination of delivery models that fit the local context
Governance
Build local governance with dedicated delivery units, streamlined processes, and performance management

SOURCE: McKinsey Global Institute analysis

Based on a model of income distribution and housing costs for some 2,400 cities and an illustrative quantification of these approaches, we estimate that, if the four levers are used to their maximum potential, the housing affordability gap can be bridged entirely for segments of the population earning above 50 to 80 percent of median income (Exhibit E3). For households earning less, these levers will need to be complemented with additional measures and subsidies. This assistance can be used to provide appropriate standard housing units where possible or simply to improve living conditions. While we use a standard unit for entire cities to estimate the impact of our cost-saving levers, in reality cities should use a "ladder" of housing options that could include smaller units and communal housing for very low-income households, which can increase impact and broaden access to affordable housing.

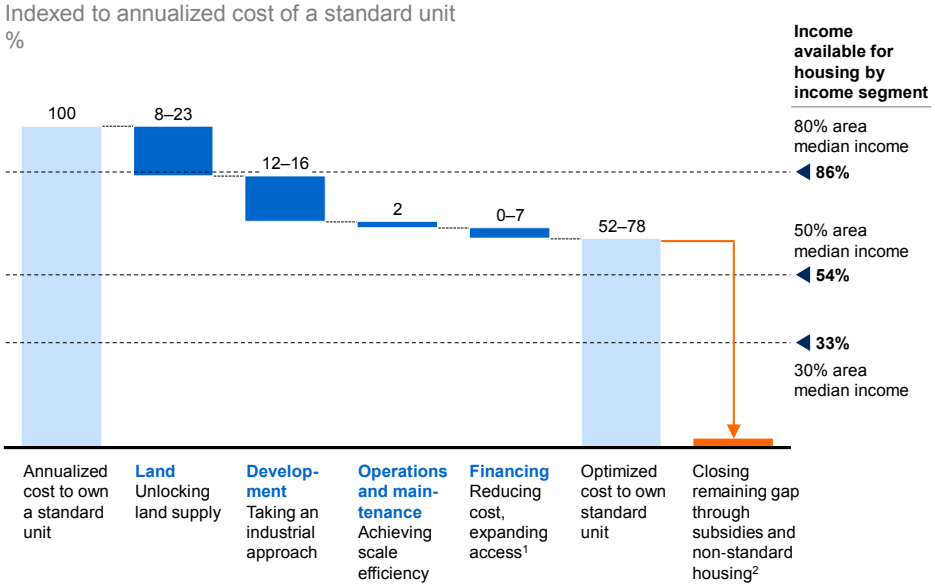
Exhibit E3

Four levers can narrow the affordability gap

Impact of levers on cost of standard unit

Indexed to annualized cost of a standard unit

%



1 Impact of reduced origination and funding costs is quantified; impact of increased access to financing is not.
2 Transitional use of basic housing (with communal toilets and kitchens, for example) to serve very low-income households.

NOTE: Numbers may not sum due to rounding.

SOURCE: McKinsey Global Institute analysis

HOUSING PROGRAMS SHOULD BE BASED ON A BROAD VISION OF A HOUSING LADDER, WITH IMPROVING OUTCOMES

Housing programs should be designed to address needs across all income segments and account for changes that will occur in the circumstances of residents and in the economics and demographics of the city. So programs have to be comprehensive—covering both existing housing and new developments—and include both near-term and long-term objectives that reflect rising aspirations over time.

Too often, however, plans focus solely on how to create new housing units with minimum standards for every household. In the near term, this aspiration may be unrealistic, given budgetary constraints. Pursuing a too-ambitious near-term aspiration also can lead to common pitfalls. To fulfill minimum standards, affordable housing may be forced onto cheap land on the outskirts of the city, where residents are cut off from centers of employment and social connectivity. Another consequence could be more low-income residents crowding into substandard housing or informal settlements, since new housing meeting the minimum standards would be beyond their reach.

A better approach is to think about a ladder of housing aspirations, with rising standards for floor space per unit and amenities, which can be met over time. This requires cities to think about both the current stock of housing and the new flow of units and to consider the needs of each income segment. Cities would need to ensure the refurbishment of existing units and also invest in infrastructure and social services in informal settlements to improve conditions in the short term.

Cities can also aim to provide affordable rental options and transitional housing as part of the ladder. With this approach, cities can help the lowest-income citizens quickly move into safe, decent housing at locations with access to employment. At the same time that cities address the immediate needs of their poorest residents, they should work to improve the housing market for all income segments so that middle- and higher-income segments move into new supply, which releases their current homes for lower- income households. Such a ladder-based approach was used in Hong Kong to improve housing conditions for all lower-income segments.[2]

To craft near- and medium-term plans, cities need to use a rigorous analytical approach. This can start with a thorough assessment of the status quo, including household-level data on income, housing standards (land and floor-space utilization), and the distribution of housing occupied by different income groups across the urban land area, as well as locations of centers of employment and a precise inventory of existing housing stock and planned new supply, including prices.[3]

UNLOCKING LAND SUPPLY AT THE RIGHT LOCATION IS THE MOST CRITICAL STEP IN PROVIDING AFFORDABLE HOUSING

Finding land in an appropriate location is the most critical step in developing successful affordable housing. Indeed, if the decision about land is wrong, affordable housing projects cannot succeed, no matter how well construction, operations, and financing are managed. Projects must be built where residents can reach jobs in reasonable commuting times, families have access to schools and vital services, and people can connect with the society around them.

Land cost often is the single biggest factor in improving the economics of affordable housing development. It is not uncommon for land costs to exceed 40 percent of total property prices, and in some large cities, land can be as much as 80 percent of property cost. Where land is available at a lower price—on the fringes of the city—housing projects may fail due to lack of infrastructure (schools, hospitals, transportation to employment). We find that urban land markets do not respond well to normal supply and demand forces for several reasons, including fragmented or public ownership, poor land records, and regulations and zoning laws that discourage development.

2 Lok Sang Ho and Gary Wai-chung Wong, "The first step on the housing ladder: A natural experiment in Hong Kong," *Journal of Housing Economics*, volume 18, issue 1, March 2009.

3 Alain Bertaud, "Housing affordability in China: A stock and flow approach," presented at the Symposium on Low-income Housing in China, Beijing, July 10–11, 2009.

Six mechanisms have been used around the world to unlock urban land for affordable housing: developing new land around transportation infrastructure, releasing government-owned land for development, using regulatory measures (such as idle-land regulations) to unlock private land, assembling or readjusting land to allow development, formalizing ownership of informal land and modernizing land-registration systems, and reforming urban land rules to increase housing supply for all income segments (by changing density limits, for example). Regulatory reforms may involve "inclusionary" land-use rules to encourage development that includes affordable housing.

- **Smart, transit-oriented development.** Development around rapid-transit routes has several advantages, including improving labor mobility and, potentially, providing a mechanism for funding both affordable housing and transportation infrastructure. Access to rapid transit that can get residents to work within an hour is particularly important for low-income residents who often cannot afford a car. Over the past four decades, Hong Kong has added 1.4 million homes in the New Territories, across the harbor from Hong Kong Island, most of them oriented to transportation infrastructure: 43 percent of residents and 56 percent of jobs are within 500 meters of rail and metro stations. In cities where new transit facilities have been built, land values in the surrounding areas have risen by 30 to 60 percent. By capturing a share of that increase (through land sales or "betterment" assessments), government can pay for the infrastructure investment and the cost of affordable housing.

- **Releasing public land.** Governments often own significant shares of undeveloped land in cities, and this land is frequently valued below market prices.[4] In Turkey, the TOKİ housing agency has assembled 4,120 square kilometers, or 4 percent of urban land, largely by acquiring land from other government entities. This land is developed in partnership with private developers under a revenue-sharing scheme that allows TOKİ to split development costs and fund further land acquisition and development of affordable housing. China's government releases public land to the market every year, selling development rights and 70-year ground leases to developers. In Monterey, California, the city helped turn an old military base into a mixed-use development with an affordable housing component. Value captured from the release of public land is also a potential source of funding for infrastructure development.

- **Unlocking serviced idle land.** In many cities around the world, significant amounts of serviced residential land (with access to utilities and infrastructure) within urban areas are unused or under-developed. An analysis of a sample of parcels in Riyadh, Saudi Arabia, indicates that some 40 square kilometers that are zoned residential and have access to suitable infrastructure have remained idle for two decades. Land remains idle for a range of reasons, including lack of demand and hoarding for speculation as improvements and rising market values around the parcel result in an "unearned betterment" for owners. In some cases, a lack of clear title keeps land off the market. Tax and regulatory policy can unlock idle land through incentives (property tax exemptions for new development, for example) or penalties, such as idle-land taxes. To discourage hoarding, China charges the equivalent of 20 percent of land price to owners who leave urban property undeveloped for a year; after two years,

4 Alain Bertaud, *Converting land into affordable housing floor space*, World Bank policy research working paper number 6870, May 2014.

the land can be confiscated. In the Philippines, municipalities have the option of imposing an idle-land tax to unlock land for development.[5]

- **Enabling development through land assembly or readjustment.** Ownership of idle or underused land or dilapidated properties is often fragmented, making development of such land parcels complex and time-consuming. Land assembly and readjustment (also known as land pooling) have been used successfully in Japan, South Korea, and Gujarat, India. Under these schemes, owners pool their land in exchange for higher density and infrastructure investment. The readjusted land (typically a comparable or smaller plot with similar improvements) is then returned to the owners. The resulting increase in value creates a strong incentive for owners to contribute land for development.

- **Ensuring clear titles and formalizing informal land use.** Informal land can be formalized through legal structures that facilitate individual or collective ownership. Simply establishing who actually owns land can make it accessible to the market. Often in developing economies, land-registration systems have not evolved; upwards of 70 percent of land in developing economies is unregistered, according to UN-Habitat. An efficient land-registration system establishes clear ownership rights that enable transactions to move ahead without risk that another party will later assert ownership rights. In addition, a modern land-registration system provides a database of all parcels, their value, land-use restrictions, and any encumbrances (such as mortgages or easements) so buyers have certainty of ownership. Land registration and other legal processes to formalize ownership of informal land also can facilitate transfer of ownership to individuals or groups that have occupied the land.

- **Improving urban land-use rules and using inclusionary planning.** By changing land-use rules, cities can significantly lower the amount of land used per housing unit, usually by adjusting the permitted floor-area ratio. This can be done on a block-by-block basis to take into account the impact of higher density on infrastructure capacity. Developers then can construct more square meters of space for each square meter of land and can fill more demand for housing, particularly in areas close to transit stations where the infrastructure can support it. This practice has been used successfully in Seoul to expand housing supply in the South Korean capital. Encouraging development in this way can cause a trickle-down effect, in which new housing is created across all income segments and older stock becomes available at appropriate locations for low-income households. Broad reform to urban land regulation needs to be complemented in the near term by "inclusionary" planning that requires developers to supply affordable housing or land on which affordable housing can be built. Under inclusionary principles, in return for higher revenue per square meter of land (a density bonus), the developer must set aside a certain portion of a project for affordable units to be sold or rented to lower-income residents.

5 Richard F. Dye and Richard W. England, "The principles and promise of land value taxation," in *Land value taxation: Theory, evidence, and practice*, Richard F. Dye and Richard W. England, eds., Lincoln Institute of Land Policy, 2009.

This can provide land for affordable units at very low cost, even for free. In Barcelona's La Marina development, for example, increasing the floor-area ratio from 1.0 to 2.3 made it possible for the developer to offer half the units as affordable housing, with prices about a third of market rates. Many cities have also adopted transferrable development rights, allowing a private developer to fulfill its affordable housing requirement on another site. Inclusionary zoning must be carefully designed and managed to avoid unintended consequences, such as over-burdening infrastructure, allowing use of transferrable development rights to segregate low-income populations, or raising costs so much for higher-income households that demand for new development is suppressed.

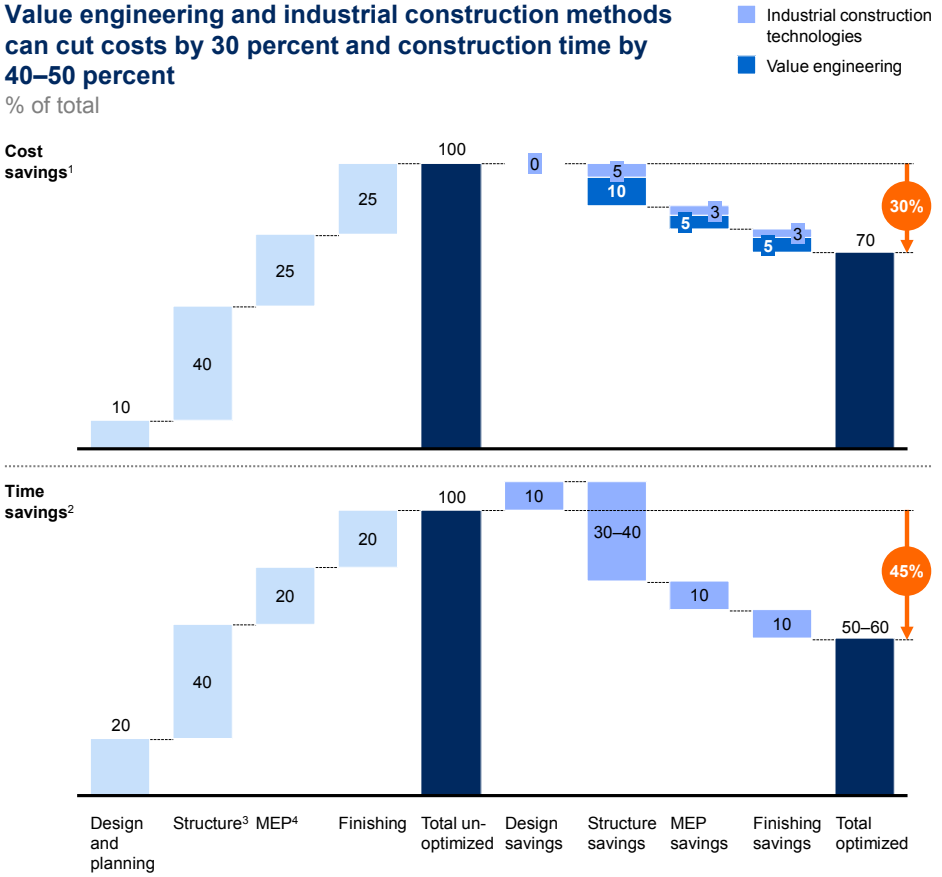
VALUE ENGINEERING AND INDUSTRIAL APPROACHES TO CONSTRUCTION CAN DELIVER HOUSING QUICKLY, INEXPENSIVELY, AND ON A LARGE SCALE

To meet rising demand for affordable housing—an estimated 2.4 million additional units will be needed annually by 2025 in the 20 largest cities alone—developers need to become more productive. In several affordable housing developments, value engineering to improve capital productivity and industrial construction techniques to improve labor productivity have helped to cut costs by 30 percent and shorten delivery time by 40 to 50 percent (Exhibit E4).

Exhibit E4

Value engineering and industrial construction methods can cut costs by 30 percent and construction time by 40–50 percent

% of total



1 Based on typical medium-density affordable housing development cost breakdown.
2 Based on 36-month baseline schedule.
3 Includes foundation, superstructure, and landscaping.
4 Mechanical, electrical, and plumbing.
NOTE: Numbers may not sum due to rounding.
SOURCE: Expert interviews; McKinsey Global Institute analysis

In most of the world, traditional approaches are still being used to build residential housing. And, instead of improving productivity with new approaches and tools, as other industries have done over the past two decades, the construction industry has seen productivity (of capital and labor) decline by 10 to 20 percent in many countries. Given prevailing land prices for parcels at suitable locations, we estimate that the housing industry would need to cut costs by about 30 percent to deliver a standard unit in a multifamily building that would meet affordability requirements. This implies a cost somewhere between $150 and $1,500 per square meter, depending on the country, which would require thorough application of capital productivity measures such as value engineering and efficient procurement, as well as adoption of industrial approaches such as use of prefabricated components. These potential savings are critical for making the economics of affordable housing attractive and encouraging developers to think beyond housing for mid- and high-income consumers.

- **Capital productivity and value engineering.** Capital productivity includes use of design-to-value techniques and standardization, efficient purchasing, and lean execution techniques, which together can reduce construction costs by 20 to 30 percent. Design-to-value means reducing unnecessary costs by, for example, "de-specifying" building requirements (reducing ceiling heights or specifying less expensive electrical or plumbing fixtures). A simple approach for builders is to standardize a few options for major systems, such as structural design and finishing elements, across their portfolios. Standardization simplifies training and, since workers repeat the same tasks with the same products, they become more productive. New information technology systems such as building information modeling software can help identify opportunities to save. If design-to-value approaches are adopted by developers, architects, and contractors together, savings of up to 15 percent can be achieved.

  Additional savings are possible through efficient procurement. By managing suppliers, standardizing parts to earn volume discounts and pushing suppliers to provide lower costs through technical innovation, developers can save up to 30 percent. The UK procurement efficiency initiative, which created buying consortia among owners of social housing (elsewhere known as public housing), helped save 15 to 30 percent on certain materials. For affordable housing, where margins are relatively thin, smart procurement can help builders withstand swings in commodity prices that might wipe out profits. Lean operations in construction—eliminating waste, streamlining critical-path processes, reducing buffer times between processes, and other approaches—can also reduce time and cost.

- **Industrial construction methods.** Industrial approaches save cost and time by moving critical construction processes off-site or using advanced on-site (*in situ*) techniques that make construction more like manufacturing. One of the most effective approaches is using prefabricated parts, such as pre-cast structural elements. The off-site manufacturing process improves quality and enables the developer to shrink schedules by having parts delivered as needed, rather than waiting for them to be fabricated on site. In South Africa, the cost of medium-density affordable housing projects was cut by 25 to 30 percent using industrial processes. In theory, 70 to 80 percent of activities for residential buildings could be completed off-site, but industrial approaches have been held back by large capital requirements, a need for scale

efficiencies, and the fragmented nature of many development and construction markets. An automated facility to produce enough cement slabs and walls for 12,500 housing units per year could cost about $30 million. To justify such an investment requires an assured level of demand within an economical delivery area. Advanced *in situ* techniques using tunnel forms and lightweight metal forms provide a less capital-intensive way to introduce manufacturing-like processes.

Government can play a key role in encouraging industrial construction through public procurement efforts, uniform building codes, and design standardization guidelines, which could encourage innovation in construction and building materials. Government can also help shape consumer acceptance—overcoming the stigma associated with industrial housing techniques that arose from their use in housing blocks in places such as the former Soviet Union and East Germany. Today's developers have found ways to overcome quality and aesthetic issues, for instance by varying facades and public spaces to give buildings distinct identities.

IMPROVED OPERATIONS AND MAINTENANCE MEASURES REDUCE OPERATING EXPENSES AND SUSTAIN ASSET VALUES

Once housing is constructed, additional cost savings can be achieved in operations and maintenance, which can account for up to 20 to 30 percent of annual housing expenditures, depending on the country. Reducing these costs can make housing more affordable, and establishing the right standards and governance can avoid dilapidation and help preserve housing stock.

There are two major ways to cut overall operations and maintenance costs by 10 to 15 percent: improving energy efficiency and reducing the costs to repair and maintain buildings through measures such as cooperative purchasing by social housing owners.

- **Improving energy efficiency.** In the United Kingdom and the United States, government programs have provided subsidies to enable low-income citizens to retrofit homes with energy-saving materials (insulation, windows, and efficient heating and air-conditioning systems). These retrofits have cut energy costs by 20 to 30 percent with a two-to-one return on investment.

- **Reducing maintenance costs and improving asset management.** Maintenance costs can be cut by finding scale economies. Typically, repair and maintenance service industries tend to be highly fragmented, and many operators are subscale and inefficient. By pooling demand for such services, these businesses can be encouraged to scale up and become more competitive. The UK social housing buying consortia, for example, achieved 25 percent savings across specific categories of operations and maintenance services. Scale improvements can also be encouraged by certifying and listing maintenance and repair services, giving purchasers a better basis for selecting vendors, and encouraging vendors to improve their services to attract more customers.

  Setting standards and empowering homeowner groups can greatly improve the quality of operations and maintenance activities. The UK Decent Homes Standard specifies minimum requirements for maintenance and provides incentives and funding to help social landlords make repairs. The government also encouraged a shift in ownership of social housing to private owners

(usually non-profits) and public-private partnerships to professionalize management, and provided grants for repairs. Under this program, the share of social housing meeting decency standards rose from 47 percent in 1996 to 85 percent in 2011. In Slovakia, homeowner associations were given broad new powers to operate and maintain former state-owned housing projects. Governments can encourage better asset management by setting guidelines for maintaining major systems and common areas and providing enforcement mechanisms for collection of maintenance and other fees.

IMPROVE FINANCING TO REDUCE COSTS FOR HOME BUYERS AND DEVELOPERS, WHILE SUPPORTING A HEALTHY RENTAL MARKET

How housing is financed has a significant impact on affordability. This applies both to home buyers and to developers. While access to finance for low-income households can be improved in advanced economies, it is a particular challenge in developing economies where financial systems are not as well developed and many low-income citizens are "unbanked" and work informally. As part of housing-finance policy, nations must also consider the role of renting in the housing mix (See Box E3, "Rental options are needed for low-income households as an alternative to ownership").

Box E3. Rental options are needed for low-income households as an alternative to ownership

There are many reasons that households would rather rent than own, including to maintain their flexibility to move to more attractive units when their incomes rise or to different places if they change jobs. Many households simply lack the income to accumulate a down payment, access credit, or keep up with monthly payments.

Governments typically provide a range of protections for renters, including minimum maintenance standards and regulations to ensure security of tenure. Restrictive rent price control schemes have often been introduced but have subsequently been phased out due to major challenges, including widespread abuse, limited mobility of renters, and depressed investment in rental properties. Less restrictive controls have been used successfully, particularly in Germany, where rent increases are limited to 20 percent over three years.

Some governments provide direct rental subsidies. The Netherlands, for example, offers direct financial assistance to all qualified renters; the United States has a voucher system. Hybrid approaches can complement rental markets. In shared ownership schemes, households can either build equity gradually through rent payments (a rent-to-own model), or they can own only the structure and lease the land (which is often owned by a land trust), thereby removing the cost of land from the unit purchase price.

Three ways to improve access to finance for low-income households

Access to financing for the purchase of housing by lower-income households is severely limited, particularly in places where the affordable housing gap is greatest. If they can get credit at all, lower-income households pay a premium because of their risk profiles. Many low-income households lack savings for substantial down payments, which means that they take out high loan-to-value mortgages, which are riskier and require higher interest rates. Furthermore, many low-income people are "unbanked" and lack standard records of income, savings, and payments that credit raters use.

We identify three ways in which to improve access to credit for low-income households to purchase affordable housing: reducing loan origination costs and underwriting risk, reducing the cost of funding mortgages, and leveraging collective savings such as provident funds to lower interest rates and increase down payments (Exhibit E5). All measures to develop housing finance markets require careful design to manage systemic risk. Also, for long-term financing schemes to work, it is important to have a stable macroeconomic environment that can contain inflation, which can be a challenge for developing economies.

Exhibit E5

Three main policy themes for improving access to home financing for buyers of affordable housing

		Relevant for countries with		
Themes	Tactics	Emerging primary markets	Strong primary markets[1]	Select country examples
Reduce loan origination costs	Improve assessment methods to qualify borrowers	●		▪ India ▪ South Africa
	Introduce standardized property valuation methods	●		▪ Poland ▪ Romania ▪ South Africa
	Initiate mortgage-guarantee schemes	●	●	▪ United States ▪ India
Reduce cost of funding mortgages	Establish liquidity facilities	●		▪ Colombia ▪ Malaysia ▪ Jordan
	Expand capital market funding (with covered mortgage bonds or mortgage-backed securities)	●	●	▪ Denmark ▪ Germany ▪ Spain
	Increase use of core deposits	●	●	▪ United Kingdom
Leverage collective savings to reduce rates	Launch housing provident fund	●		▪ Singapore ▪ Mexico
	Offer contractual savings schemes	●	●	▪ France ▪ Germany ▪ Kenya

1 In the primary mortgage market, lenders originate loans directly with borrowers.

SOURCE: McKinsey Global Institute analysis

- **Reducing loan origination costs and underwriting risk.** The most effective way to reduce origination costs is to reduce the risk of lending to lower-income buyers. Risks can be better assessed by establishing credit bureaus and certified property appraisal schemes—resources that are not present in many developing economies. Mortgage-guarantee programs can reduce the risk to lenders (and allow them to lend at lower rates) by protecting them in case of default. These guarantees are well-established in advanced economies but are not in place in many developing economies. Digital and online channels can increase access to banking services for low-income households and reduce the cost to serve them.

- **Reducing the cost of mortgage funding.** To increase funding for housing broadly, and therefore also for affordable housing loans, governments can encourage banks to make more loans backed by core deposits and find ways to connect mortgage lenders to the secondary financial markets. This can be done by creating liquidity facilities—intermediaries that match the long-term instruments of borrowers (mortgages) with the short-term goals of investors. For example, Malaysia's national mortgage corporation, Cagamas, helps fund mortgages by purchasing loans from banks and issuing debt securities to investors.

  Covered mortgage bonds, which have been used in Europe, provide a means of securitizing mortgage debt that reduces risk for investors by giving them a claim on the underlying assets, while also offering recourse to the bond issuer. Securitization of mortgages—with proper safeguards—remains an important means of providing liquidity and capital for home lending and can help developing economies fund mortgages for lower-income households. However, securitization requires sufficient evolution of financial institutions and markets, as well as tight oversight.

- **Leveraging collective savings.** Another way to reduce costs for borrowers is to use collective savings programs to build up savings to reduce mortgage size and to fund low-interest loans to program participants. Contractual savings programs create pooled savings by requiring members to make contributions. The savings build up at relatively low interest rates and are used to fund low-rate mortgages for members. Provident funds use mandatory savings such as pensions to fund housing loans, including for low-income households. Mexico's INFONAVIT is funded with a mandatory contribution of 5 percent of salaries from formal workers. It underwrites mortgages and is also involved in development of affordable housing.

De-risking, guaranteeing, or subsidizing developer financing can lower the cost of affordable housing

Developer financing—the equity and debt required to secure land and pay for construction until units are sold—typically makes up 5 to 10 percent of the total cost of housing developments. In some markets, all land purchases have to be funded with equity, which can be as much as 25 percent of project costs. Governments can reduce financing costs by reducing developer risk and capital cost. In Brazil, the housing authority commits to buying finished units or finding renters for them, reducing developer risk and financing cost. In the Cosmo City development in South Africa, the developer was not required to pay for the land until after the units were sold. Reducing permitting times and shortening development timelines can also cut developer capital costs. Governments can also provide more direct forms of financing assistance. The United Kingdom has a program to guarantee developer loans and improve debt terms and access. The most direct (and expensive) ways of improving financial terms for developers are subsidized interest rates (via tax-exempt bonds) or tax incentives, such as the Low Income Housing Tax Credit program in the United States.

Effective local housing delivery platforms are required to realize the potential savings in affordable housing

The steps we outline for cutting the costs of developing affordable housing cannot be fully effective without efficient local delivery platforms to manage and fund housing initiatives. The delivery platform is how the government turns its goals, aspirations, and policies into action. Before defining the platform, policy makers must be clear about specific targets and the levers to use to meet them, methods of funding, and the types of households that will qualify for subsidized housing. Cities should also determine the delivery and partnership models that will be used to create new housing, as well as the governance structures for affordable housing efforts. For affordable housing to be delivered in a timely and cost-effective manner, the process of getting approvals and permits will need to be streamlined in many places. To define a successful platform for the particular area, policy makers need to collaborate with the community, choose the housing delivery model(s) that fits the local context, identify all possible sources of funding, and establish rules for governance, including deciding how housing benefits will be allocated and managing the performance of housing-related regulatory processes.

DESIGN PROGRAMS WITH COMMUNITY INPUT AND ENSURE THAT BENEFITS REACH INTENDED RECIPIENTS

The most important decision in designing housing programs is to determine what targets and options will be pursued—defining the ladder of housing options—and the approaches and levers that will be used. These decisions must be made at the local level and with the participation of all relevant stakeholders. Not only should planners work with residents in areas targeted for housing efforts, but they also should engage nearby businesses, employers, and civic and social groups, to ensure that housing initiatives build better communities, as well as homes. At the start of any project, establishing precise goals will inform other decisions, including choice of delivery model. Outcomes should be specified, such as number of standard units to be delivered, percentage of cost-burdened families to be helped, and ratio of homeownership desired.

Cities must also have broad agreement on which income groups need assistance and how public investment in housing will be allocated equitably to targeted beneficiaries. The offer of below-market-rate housing invites abuse and cities need to create a reliable system to ensure that only those who meet the city's criteria get below-market housing. Rigorous screening is a first step. In South Africa, for example, applicants must have a verified national ID number, and screeners check the national housing subsidy database to ensure that applicants are first-time beneficiaries, a requirement for new housing. Turkey's TOKİ housing agency does not invest heavily in verification, but it imposes harsh penalties for fraud.

Allocation can be managed with waiting lists and lotteries or some combination. In Shanghai, waiting lists are created by randomly selecting names from batches of applications. Often disadvantaged groups—senior citizens, the disabled, the homeless, and families facing eviction due to demolition—jump to the top of the waiting list. In choice-based systems, tenants state their preferences and the government tries to accommodate requests. The choice of allocation system depends partly on resources: running a lottery is far simpler than maintaining lists.

CHOOSING THE COMBINATION OF DELIVERY MODELS THAT FIT THE LOCAL CONTEXT

To create affordable housing around the world, four major housing delivery models are used: consumer-led, incented private development, public-private partnerships, and public-sector delivery. The choice of delivery model depends very much on aspirations for the housing ladder and the capabilities and resources available.

- **Consumer-led delivery.** In this model, consumers hire builders to construct their homes, requiring individuals with little knowledge to navigate an opaque and fragmented construction industry. Yet this is a common way in which families obtain housing in many places. Government can improve the odds of success for consumers by providing benchmarking information and technical assistance—letting households know how much materials and labor should cost and providing advice on how to write and enforce contracts and manage timetables. Certification—by government agencies or trade associations—can help consumers make informed choices when selecting builders.

- **Incented private development.** In this model, private developers receive financial and non-financial incentives to build affordable housing, which is sold to consumers, purchased by the government for allocation to citizens, or operated as rental property. The government determines what incentives are appropriate and which land qualifies for such incentives. It also ensures that developers fulfill their commitments.

- **Public-private partnerships.** In public-private partnerships, the public sector is an active partner with the private developer, rather than a passive, regulatory actor. Private developers may be given public land to be developed. The finished units are sold directly to homeowners by the private developer or are allocated to buyers or renters by the government. The structure of the partnership is set up to allocate the risks along the affordable housing value chain to the most natural owner.

- **Public-sector delivery.** Development by a public-housing entity remains an important method for delivering affordable housing. Governments hire private-sector contractors to build on public land while retaining control and ownership of the project. The agency then sells or rents the properties.

CREATE MECHANISMS TO LEVERAGE ALL SOURCES OF FUNDING

Once the targets for the various rungs on the housing ladder are set, the city identifies the appropriate way to fund its housing programs. Governments rely on three broad approaches to fund affordable housing: capturing part of the increase in land and property values—from public investments in infrastructure or from changes in land use (allowing higher density, for example); through cross subsidies; and by using the public budget, including via tax breaks. Effective programs to deliver affordable housing take full advantage of all these opportunities.

Land-value capture is a popular form of cross subsidy that can be used to fund housing programs and other public needs. When cities rezone areas to allow more square feet of building on a parcel, they can offer a "density bonus" to developers: in return for the right to build more units—substantially raising the value of the property—developers provide the city with land for affordable housing or finished units. In this way, the city captures the value. As noted, land values also rise as a result of investments in infrastructure, such as new transit routes. That value can also be tapped—through betterment assessments, for example. From 1997 to 2007, Bogotá used betterment levies to finance more than $1 billion in municipal works. This mechanism can be applied to fund housing, too.

Governments also have used subsidies to reduce the cost of living for low-income households, in effect making their housing more affordable. Colombia discounts rates on electricity, gas, telephone, and water services by 15 to 50 percent for low-income citizens. Another form of subsidy is the low mortgage rates offered by provident funds, which are made possible by lower returns on savings and pension portfolios. Such subsidies must be applied with care since they can encourage waste and have other unwanted consequences.

Finally, public budgets are also used to fund affordable housing—directly or through tax incentives. In the United States, the federal government funds the Section 8 voucher program that helps lower-income households cover their rents. Another US program funded by general revenue provides grants to states for acquisition and construction of affordable housing. Many cities, particularly in the places where affordable housing is needed most, have limited access to tax revenue to apply to affordable housing. They can make the most of their limited funds by using them for viability-gap funding—providing the share of investment for affordable housing projects that makes the business case viable for the private sector.

ENHANCE GOVERNMENT PERFORMANCE AND STREAMLINE DELIVERY

How well the housing authority and other government agencies perform will have a defining effect on outcomes. Qualifying applicants for low-income housing and allocating these units equitably is an important step in delivery and a crucial responsibility—ensuring that households in need get help and protecting the public by preventing fraud. More importantly, by making all the regulatory steps as smooth as possible, government can save costs for developers and attract more private developers to the affordable housing sector. The effort to close the affordable housing gap is not just a matter of money; it is also a race against time. Delays in permitting and approvals affect the efficiency of the overall housing market, which inevitably has an impact on the availability of housing options for lower-income households. Furthermore, private developers that invest in affordable housing need to start receiving payments and cash flows as quickly as possible to maintain profitability; delays reduce returns and raise the cost of capital.

Government can help speed up the delivery of affordable housing by addressing bottlenecks caused by inefficient administration and permitting processes. There is a huge gap between countries that are efficient in these processes and those that are not; permitting time for the worst performers is five times that of the best performers.

To expedite approvals, government can reduce complexity by eliminating unnecessary steps or combining steps and centralizing authority. Another tactic is to identify which steps cause the greatest delays and are costliest to developers and focus on streamlining them. Automating the building approval process, like Singapore has done, can also significantly reduce permitting times. Ukraine cut its yearlong permitting times to three months by reducing the number of procedures and running those that remained in parallel. Colombia privatized permitting, hiring independent contractors and review consultants to process permits, with incentives to handle them expeditiously—as well as checks and balances to ensure that permits were properly vetted.

Cities can also improve the performance of their overall housing efforts by setting goals and tracking performance. Dedicated delivery units have proven effective in designing and operating a range of government programs and can be very useful in housing. Delivery units are relatively small, dedicated teams that can operate across government bureaucracies to move projects and programs ahead. Delivery units have been used in affordable housing programs in Singapore and the United Kingdom.

STANDARD APPROACHES WILL YIELD ONLY STANDARD RESULTS; THE AFFORDABLE HOUSING CHALLENGE DEMANDS NEW THINKING

Crafting and executing housing policy has been a challenge around the world. The four major levers and the delivery platforms described in this report can be used to reduce the cost of delivering housing and improve housing outcomes. These approaches can help citizens of all kinds find decent, affordable housing. However, they are only the tool kit. Meeting the growing housing challenge will require applying these tools in wholly new ways, with the broadest possible vision of what housing policy can do:

- **Set policy at the city level.** Clearly there are universal factors (and solutions) in the affordable housing challenge. But every city is a unique market, with its own land market characteristics, economic issues, demographics, housing stock, and regulations. Policy can succeed only if it is based on a detailed understanding of the city where it is to be implemented.

- **Funding follows function.** Too often a narrow view of the options to provide housing leads to the assumption that funding gaps—due to insufficient public resources—preclude action. Thinking more broadly about what can be done across the housing ladder can help cities identify other sources of funding.

- **Focus on location.** Nothing can overcome the problems caused by housing in the wrong location. There must be access to employment, education, and social resources.

- **Make employment and socioeconomic integration priorities.** Providing a clean, decent place to live can relieve suffering and improve health. Creating housing where residents can connect to employment and social services enables poor citizens to climb the socioeconomic ladder

- **Enable housing for all.** Housing policies that focus solely on building units to house the poorer segments of the population miss a larger opportunity. Making it more efficient to build and operate housing across the city can benefit all segments, including by making old stock available for different kinds of households.

- **Design an integrated approach.** To achieve significant results, cities need an integrated approach that coordinates policy and initiatives in multiple areas: land, development, operations, and finance.

- **Encourage efficiencies across the housing value chain.** The better the housing sector functions, the better the chances are that the city can close its affordable housing gap. Measures such as certifying builders and maintenance services can raise standards, increase transparency, and promote healthy competition.

- **Empower communities.** Ultimately, successful housing policy is about building and strengthening communities. Involving community members in critical decision processes and generating grassroots demand and support for housing initiatives can lead to better outcomes.

□ □ □

The challenge to provide decent, affordable housing confronts nations around the world. Despite efforts to address the affordable housing gap, it continues to grow and its effects are spreading, potentially causing greater harm to citizens and economies. In this research we have analyzed the record of affordable housing policies and we see a consensus emerging about what works and what does not. Initiatives succeed when they are based on solid data and a clear understanding of how a city's housing markets serve households of all kinds. Successful initiatives also treat housing as part of a broader effort to incorporate lower-income groups into the lives of cities and open a path for poor residents to raise their incomes. Starting with such a foundation and using the cost-saving approaches we describe in the following chapters in a systematic way, cities can make real progress in narrowing the affordable housing gap.

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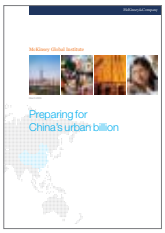

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